

# WaterWeb

current water info for grades 6-8

A publication of the Southwest Florida Water Management District



## The WaterWeb Query

### QUESTION:

If the earth still has the same amount of water since the beginning of time, why are we worried about running out of water?

### ANSWER:

About three-fourths of the earth is covered with water. Approximately 97 percent is salt water and 2 percent is fresh water frozen in ice caps, leaving only 1 percent that is drinkable. We must have enough water when and where we need it. In many parts of the world, people are using water faster than it can be replaced. In Florida, our growing population and varying amounts of rain mean that the need to conserve is very important.

### Inside this issue

2  
Steps to Sustainability

4  
Spread the Word,  
It's Cool to Conserve!

5  
It's Your Turn

6  
Land Use My Way

7  
Activities

8  
Web Sites



## Sustainability

### What Does It Mean?

Have you ever heard people talk about *sustainability*? What do you think it means? Before we begin our discussion on sustainability, let's take a closer look at the history and meaning of the word. *Sustain* comes from the Latin word *sustinere*, which means to hold up or support. *Webster's Dictionary* defines sustainability as having the characteristic of being able "to keep up, to carry or withstand," as in bearing a weight or pressure. Although this may seem like a difficult concept to understand, it is something that affects the entire world.

How can we understand the concept of sustainability?

Let's consider your home refrigerator as a closed environment. If the contents of the refrigerator are never replenished, sooner or later there will be nothing left. The refrigerator will not be able to "sustain" the pressure of having things frequently removed from it. In order for the refrigerator contents to be sustained, the amount put in must be at least as much as the amount taken out over any given period of time. Think about your own life. Consider the resources you depend on each day and the natural resources that are related to them. These resources most likely include clean air, fuel for the family car and energy to stay warm or keep cool. Other resources may include CDs, books, construction materials for building your home or fabrics used in clothing, etc. Don't forget about the

food you eat. Or the water you drink. That's a lot of resources!

Now let's take a closer look at one of our most precious resources — WATER. The hydrologic cycle cleans and replenishes the earth's surface water bodies and aquifers. People are using water faster than we can replace it. With impacts caused by the increasing population in west-central Florida, the Southwest Florida Water Management District (SWFWMD) is concerned about the issue of sustainability. The SWFWMD is charged with maintaining the balance between the water needs of current and future users while protecting and maintaining the natural systems that provide the SWFWMD with its existing and future water supply.

As we think about sustainability in the next century, we need to focus on many issues related to our natural resources. People need to work together to balance all aspects of life in Florida, in other states and throughout the world. Each of us plays an important role in meeting the challenges of sustaining our water resources.

### Here are three ways you can help:

- Take shorter showers.
- Turn the water off when you're washing your face or brushing your teeth.
- Check for leaks or drips in faucets or toilets.

Can you add to the list?

# Steps to Sustainability

Because water is such a necessary part of our lives, ensuring an adequate supply must be a priority. The mission of the Southwest Florida Water Management District (SWFWMD) is to ensure a sustainable water supply to meet public demand while protecting the environment and water resources. As more people move to Florida, demand for fresh, potable water continues to increase.

## Where Our Water Comes From

The average rainfall in west-central Florida is 53 inches a year, making it one of the rainiest regions in North America. However, most of our rainfall occurs in June through September and much is lost to evaporation. Other water runs off into surface water bodies and a portion of rainfall soaks through the soil into underground aquifers. The region within the SWFWMD obtains about 80 percent of its drinking water from these groundwater supplies and approximately 20 percent from surface water bodies.

In some areas of the SWFWMD, aquifers are connected with the lakes, rivers and wetlands above them. If too much water is withdrawn from the aquifers, the water level of the lake or river above may decline. Excessive groundwater withdrawals could also cause the salt water that surrounds the Floridan aquifer system to move or intrude into freshwater areas, which decreases the amount of fresh water available and increases the cost for providing clean, drinkable water to residents.

It's expected that groundwater will always be a source of drinking water, but access to other sources is essential. The use of surface water will most likely increase in the future because the ability of the groundwater system to satisfy an ever-growing need for fresh water is limited. But there are limits to surface water as well.

## The SWFWMD's Role

The SWFWMD is responsible for managing and protecting water resources and related environmental systems. To protect natural systems that sustain groundwater, there must be limitations on how much water can be withdrawn. This is accomplished through planning, permitting and regulation. Local and regional governments, and agricultural and other users come to the SWFWMD to request water use permits. In addition to protection through regulation, the SWFWMD technically and financially assists regional water supply authorities and local governments in developing new water sources.



## Steps to Sustainability

There are several steps that can help create and maintain sustainable water sources.

**Conservation** – Conservation can be the most cost-effective “new” water source available. A drop of water saved is a drop of water gained.

**Reclaimed water** – Reclaimed water is defined as “water that has received at least secondary treatment and is reused after flowing out of a wastewater treatment facility.” Reclaimed water is currently used for agricultural irrigation, groundwater recharge, industrial processes and the irrigation of lawns, landscapes, cemeteries and golf courses. Reuse saves fresh water for drinking and other daily needs and relieves the stress on the environment by reducing the demand from ground and surface waters.

**Offstream reservoirs** – During our rainy season, water can be skimmed from the high flows of rivers and stored for later use in offstream reservoirs.

**Desalination** – Desalination is a process that removes salt from seawater or from brackish (slightly salty) water to produce fresh, drinking-quality water. The process would allow us to benefit from the vast quantities of water available in the Gulf of Mexico.

**Land acquisition** – Another key to a sustainable water supply is land acquisition and management. The SWFWMD, other organizations and private citizens

all contribute to managing and protecting natural lands, which in turn protects our water resources. Wetland and upland health play an important role in a sustainable water supply. Wetlands contribute to water supplies, especially in areas that rely on surface waters.

Wetlands also help filter out impurities from stormwater runoff and contribute significantly to ecosystem health by providing habitat for fish and wildlife. Uplands are important water resource areas,

especially because of their potential to recharge the Floridan aquifer system.

Water is crucial to the quality of life that has attracted so many people to Florida. Demand for water continues to grow. Safe, cost-effective, sustainable and environmentally friendly water sources are needed. If we are to preserve the environment that makes Florida unique, everyone must work together to sustain west-central Florida's water resources.



### What Do You Think?

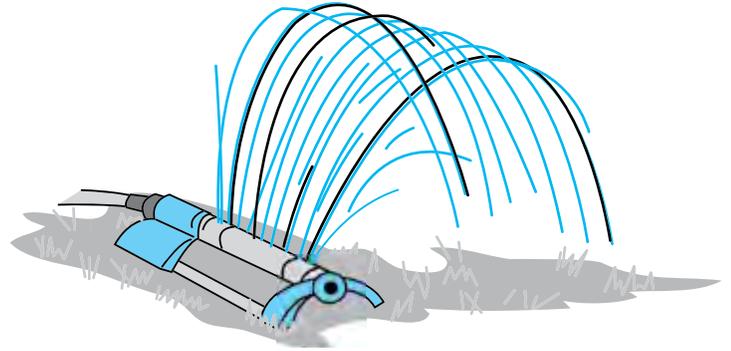
1. Why is it important to create and maintain sustainable water sources?
2. What are possible consequences of groundwater depletion?
3. How does purchasing and conserving tracts of land help to protect water resources?

# Spread the Word, It's Cool to Conserve!

There are several ways you can help your community save water. Here are just a few things you can do:

## Don't Be a Sunshine Sprinkler!

Avoid watering your lawn in the middle of the day. Instead, water early in the morning according to your local watering restrictions.



## Be a Sweeper, Not a Hoser!

Use a broom instead of a hose to clean driveways and sidewalks.

## Don't Be a Lawn Scalper!

Try to keep the grass on your lawn at least 3 to 4 inches high. Raising your lawn mower blade to its highest setting encourages grass roots to grow deeper and grass blades to hold moisture longer than a closely clipped lawn.

## Stay in Your Space!

Adjust sprinklers so they water only landscaped areas and not driveways, sidewalks and streets.



## Become Florida-Friendly!

Create landscape areas that don't require a lot of water. Landscape with drought-tolerant ornamental grasses, plants and trees. Group plants together based on similar water needs and use mulch to retain moisture and reduce weeds.

## Slow the Flow!

Turn off the water while brushing your teeth or washing your face. Any water you don't use is just going down the drain.

## Delay Your Chores!

Run automatic dishwashers only when fully loaded. Set clothes washers to the appropriate water level for the size of load you are washing.



## Save Time and Water!

If you don't have an automatic timer on your sprinkler, use a kitchen timer as a reminder to turn off the water. Left unattended, a garden hose can waste as much as 540 gallons of water in just an hour.

You have learned that sustaining our water resources is a challenge for all citizens. How involved are your relatives, friends and neighbors in protecting and maintaining our natural resources? Use the survey below and find out. Give copies of the survey to at least five people. Ask them to give honest answers to each of the 10 questions. After they have finished, show them the desirable answers, which are included on page 8. By teaching others about sustainability, you will play an important role in the future of our environment. You may also want to compare your survey results with other classmates. Some of the results may surprise you!

## **Sustainability Survey**

For each question, check Yes or No.

- |     |                          |    |                          |   |
|-----|--------------------------|----|--------------------------|---|
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 1. Do you practice water-saving techniques in your home?              |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 2. Do you ever sweep leaves or litter into stormwater drains?         |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 3. Do all your outdoor irrigation hoses have nozzles on them?         |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 4. Do you use recycling bins for newspapers, plastics, glass, etc.?   |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 5. Do you ever water your outdoor landscape in the middle of the day? |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 6. Does your home have water-saving showerheads and faucets?          |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 7. Do you periodically check your home for dripping faucets?          |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 8. Have you ever participated in a pond or nature area cleanup?       |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 9. Do you always obey your local watering restrictions?               |
| Yes | <input type="checkbox"/> | No | <input type="checkbox"/> | 10. Do you encourage other family members to use less water?          |



## Land Use My Way

The concept of sustainable development is very important when we think about the growth of a community. Groups within the community may have different views about future development and its effects on the environment. The purpose of this activity is to gain a better understanding of the complexities of sustainable development. This activity will require three class sessions.

### Session One

Use a large piece of paper the size of a wall mural, bulletin board, etc. As a class, draw a stream, wetlands, river and estuary system (see sample drawing). Be creative. Draw plants and animals that could be found there. You may also use cutouts from magazines.

### Session Two

Divide into seven groups so each group represents the interests of a different type of water user. From the perspective of your group, develop a plan as to how the water resources in this area should be used.

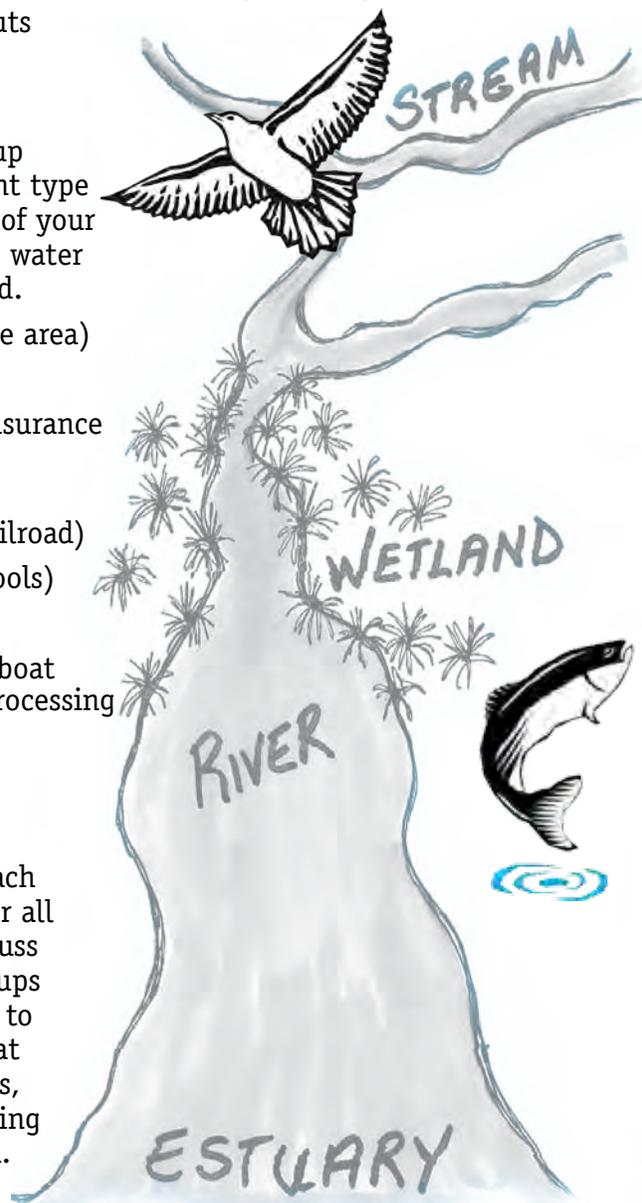
1. Residents (people who live in the area)
2. Agriculture (farmers)
3. Local business (maybe a mall, insurance or real estate company)
4. Transportation (Department of Transportation, bus company, railroad)
5. Social services (hospitals or schools)
6. Parks and recreation
7. Manufacturing (fertilizer plant, boat manufacturer or other type of processing plant)

### Session Three

Combine all groups for a follow-up discussion. A representative from each group should present the plan. After all positions have been presented, discuss the pros and cons of each plan. Groups with conflicting interests may need to modify their positions based on what is best for the community. As a class, determine the best plan for developing the community. Complete the mural.

**Be Creative!**

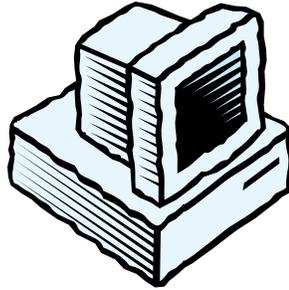
Sample Drawing for Session One







## Sites for WaterWeb Readers to Explore



There is a lot of information about sustainability on the Internet. Use a search engine to find out more. Following are a few key words to get you started on your search for additional information about sustainability.

- sustainability
- ecosystems
- water conservation
- environmental science
- pollution

Also, be sure to visit the Southwest Florida Water Management District's web site at [WaterMatters.org](http://WaterMatters.org).

## Answers

Answers to Sustainability Survey questions on page 5:

All answers should be YES except 2 and 5.

## Credits

*WaterWeb* is published by the Southwest Florida Water Management District as part of the Splash! program. For information, additional copies of this newsletter or copies of the Teacher's Guide, please call 1-800-423-1476, ext. 4757, or visit our online ordering page at [WaterMatters.org/publications/](http://WaterMatters.org/publications/).

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